REMARKS

Claims Objections

No further amendments are made at this time to the amendments filed on 25th August 2005 save to correct the status identifiers of claims 23, 27 and 28 to be "Previously Presented" so as to address the claim objections.

Claim Rejection under 35 USC 112

Support in the specification for the feature "the combinational local path not interfering with the operation of the scan chain due to maintaining the test data input at operating voltage" of claim 22 is provided by page 10 lines 6 to 8 ("since the test data input pin TDI is pulled to operating voltage V_{DD} according to the standard, i.e. TDI = "1" and hence, keeps the whole boundary scan delay chain path quiescent in functional mode.").

This rejection under 35 USC 112 thus falls away for claims 22 to 28.

Claim Rejections under 35 USC 103

Claim 22 – First Distinction

In his Reply to Arguments, the Examiner has stated as follows:

"Although, Jacobsen in view of Whetsel does not explicitly state the delay chain is for "measuring the time interval for transmission" it is there nonetheless and it would be obvious to one skilled in the art to perform a delay measurement with existing structure, namely Whetsel TO output. The Examiner would like to point out that the prior art does not have to disclose intended use or purpose for it has been held that "If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative diffence as complared to the prior art." See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto,* 136 USPQ 458, 459 (ccpa 1963)."

This can be interpreted in a number of ways:

(i) the missing feature is implicitly disclosed or suggested to the skilled person by the cited prior art,

(ii) the missing feature relates to an intended use or purpose which need not be shown by the cited prior art in view of *In re Casey* and *In re Otto* case law.

Claim 22 is a method claim and reads as follows:

A method of measuring the time interval for transmission of a test signal in an integrated circuit having a scan chain for boundary scan testing, where the method comprises the steps of:

in a first time period applying a test data signal to a test data input for boundary scan testing; and

measuring the time interval for transmission of the test signal to a separate delay chain output port which is the output of a local combinational path from the end of the scan chain and which is additional to the test data output port for boundary scan testing; the measurement of the transmission time interval being to determine the performance of the integrated circuit; at other times the combinational local path not interfering with the operation of the scan chain due to maintaining the test data input at operating voltage.

It will be noted that measuring the time interval for transmission of the test signal is a limiting feature of this method. The Examiner accepts that neither Jacobsen nor Whetsel explicitly discloses this feature.

To the extent the Examiner alleges (i) that this feature is implicitly taught by Jacobsen in view of Whetsel, this allegation is not supported by evidence. Furthermore, it is not an implicit teaching of Jacobsen or Whetsel to measure time interval for transmission of a test signal because both teach other types of measurements. Jacobsen relates to selectively bypassing scan cells for boundary scan testing. Boundary scan tests are static tests of whether or not a signal is transmitted from one device to another rather than being tests of signal transmission times. Whetsel teaches real time observation,

rather than transmission time measurements, of selected nodes, i.e. particular scan cells, within a scan chain, see its Figure 13 and column 5, lines 26 to 38.

Neither Jacobsen nor Whetsel provide a motivation to undertake measurement of the time interval for transmission of the test signal.

The Examiner appears to already appreciate to some extent that nether Jacobsen nor Whetsel provide such teaching as he feels a need to (ii) refer to case law to the effect that the prior art need not show the feature of measuring the interval for transmission (of a test signal).

However, that case law is inapposite for the following reasons:

Casey involves apparatus claims, not method claims. In that case, the applicant tried to give patentable weight to recitations of the way the claimed apparatus would act on masking tape. However, while distinguishing the purpose of the claimed apparatus from the purpose of the prior art apparatus, these functional recitations did not in fact distinguish one structure from the other. The USPTO refused to give weight to those limitations, and the court agreed, on the ground that the manner in which a machine is to be used is not germane to the patentability of the machine itself, citing Otto. The court in effect says, if you wanted a patent, you should have filed method claims. (See Casey page 238, partial paragraph at top of first column, and the last two paragraphs that begin in the first column.) Casey is inapposite to our case, because our case does in fact involve method claims. Our current claims, namely 22 to 28, are all method claims, and measuring the time interval for transmission of the test signal is a limiting feature of this method.

It is well-settled that to establish a prima facie case of obviousness, the prior art reference(s) must teach or suggest all the claim limitations (see MPEP 2142, "Establishing a *prima facie* case of obviousness"). Jacobsen in view of Whetsel fails to

teach or suggest all the limitations of claim 22. Therefore no *prima facie* case of obviousness is established.

Claim 22 – Second distinction

On a further point, the Examiner states:

"Applicant states on page 5 of the Remarks, "the combinational local path not interfering with the operation of the scan chain due to maintaining the test data input at operating voltage. Neither Jacobsen, Whetsel nor other cited art discloses or teaches this feature". The Examiner disagrees and asserts that Jacobsen teaches "the combinational local path..." via MUX 850, which passes signals directly from the TDI to TDO. In view of Whetsel's additional test output TO as set forth in the previous Office Action of Record Jacobsen substantially teaches "the combinational local path not interfering with the operation of the scan chain due to maintaining the test data input at operating voltage"."

The portion of the previous office action apparently referred to states:

"Whetsel teaches the use of an additional test output pin (or terminal) TO is added to the IC to output data **(a separate delay chain output port (DCO) ...which is additional to the test data output port)** during observation and bypass modes of a selected scan path where the TO pin is 3-state **(delay chain output port being keep in tristate condition)** so that multiple ICs can have a bussed TO connection at the board level. (Col. 5, 26-31, FIG.13)."

The corresponding portion of the latest office action states:

"Whetsel teaches the use of an additional test output pin (or terminal) TO is added to the IC to output data **(a separate delay chain output port (DCO)... which is additional to the test data output port)** during observation and bypass modes of a selected scan path where the TO pin is 3-state **(maintaining the test data input at operating voltage)** so that multiple ICs can have a bussed TO connection at the board level. (Col. 5, 26-31, FIG. 13)."

As the Examiner indicates, Whetsel teaches a test output port which is 3-state. It does not apparently teach maintaining the test date input at operating voltage (emphasis added).

Accordingly, Jacobsen in view of Whetsel does not apparently teach the requirement of claim 22 that "the combinational local path not interfering with the operation of the scan chain due to maintaining the test data input at operating voltage".

Dependent Claims

Claims 23 to 28 are patentable not least on the basis that they each depend on an allowable independent claim 22.

Conclusion

In view of the foregoing, allowance of all the claims presently in the application is respectfully requested, as is passage to issuance of the application. If the Examiner should feel that the application is not yet in a condition for allowance and that a telephone interview would be useful, he is invited to contact Applicants' undersigned attorney at **973-386-3147**.

Respectfully submitted,

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By: _____

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Date: Feb. 16, 2006

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